

7. Summary

Evaluation of prostaglandin F_{2α} in addition to a conventional treatment of retained placenta in dairy cows.

In a field trial etiproston (Prostavet®), a synthetic analogue of prostaglandin F_{2α} was used therapeutically, i.e. after diagnosis of retained placenta (fetal membranes were considered retained if not expelled within twelve hours after parturition). The trial was conducted from June 1998 to November 1999 on three commercial dairy farms in Brandenburg, Germany. A total of 293 cows were enrolled in the study. After withdrawal of animals not fitting the treatment protocol, finally 229 cows were eligible for statistical analysis. On farm A, B and C a total of 77, 62 and 90 cows respectively, remained in the study.

In both groups an attempt was made to carefully remove the fetal membranes. After the manipulation an intrauterine antibiotic treatment was administered (treated controls). Cows of the experimental group received a supplementary intramuscular injection of 4 mg etiproston (2 ml Prostavet®) at every treatment. Therapy was continued in two to three day intervals until the placenta was expelled. Animals with rectal temperatures exceeding 39,5°C were systemically treated with antibiotics.

All cows were examined for endometritis by rectal palpation between days 14 to 20 post partum. Animals that showed signs of endometritis were treated with PGF_{2α} (4 mg etiproston). Afterwards they were re-examined two weeks later and in case of endometritis treated again in the same way. The parameters used to measure subsequent reproductive performance were days to first service, days open, service rate, first service conception rate, services per conception and conception rate. Cows not inseminated or found not pregnant at a pre determined time post partum were examined by rectal palpation and treated accordingly. Repeated monthly test day milk yield (Fat Corrected Milk, FCM) was used to evaluate the effect of etiproston treatment during the first four months post partum. The history of each animal was observed up to next pregnancy, culling of the cow or until day 200 post partum.

Short-term effects

Time from calving to placental expulsion was shorter in the etiproston treated group on farm B ($p < 0,05$). Cows in the experimental group on farm A required more treatments for retained placenta than those of the control group ($p < 0,05$). On farm C the number of cows systemically treated with antibiotics because of fever was significantly lower in the etiproston

treated group ($p < 0,05$). A positive influence of calving management on this farm, differing from farms A and B, has been supposed. During the first 20 days p.p. on farm B the animals in the experimental group had less cases of mastitis ($p < 0,05$), but incidence of other diseases did not differ significantly between study groups on all farms.

Medium-term effects

Concerning prevalence of endometritis there was no difference between the experimental groups and the control groups on any farm, neither at first nor at second examination post partum.

Long-term effects

Treatment of retained placenta with etiproston had no significant effect on reproductive performance on all farms. Causes for infertility did not differ between the study groups on all farms as well.

Culling, milk yield

Culling frequencies did not differ significantly between the study groups on all farms. On the other hand on farm C more cows of the experimental group were excluded from breeding and considered culled ($p < 0,05$), but these were complex management decisions of the farm itself. Therefore this difference seemed to be accidental.

Regarding milk yield there were no statistical differences between the study groups on all farms.

The additional use of prostaglandin $F_{2\alpha}$ for treatment of retained fetal membranes had some short term effects. However, each effect was achieved on only one of the farms participating in the trial. Differences were not always in favour of the experimental group. Thus the therapeutic regimen in the experimental groups was not cost effective, because especially long-term effects failed to appear.